

## PATENT ABSTRACTS OF JAPAN

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## (54) PRODUCTION OF METALLIC POLYIMIDE SUBSTRATE

## (57)Abstract:

PROBLEM TO BE SOLVED: To eliminate pinholes in the film and to obtain high insulating reliability by subjecting a polyimide resin film electrodeposited on a metallic surface to treatment of making it into an insulator and moreover electrodepositing polyimide thereon.

SOLUTION: In the treatment of making an electrically conductive polyimide film electrodeposited on a substrate of a metal of copper, nickel, cobalt, iron or the like or an alloy thereof into an insulator, heat treatment is executed at 50 to 400° C for 10 to 60 minutes, the bindability between electrodeposits is increased by dehydrating reaction together with the removal of a solvent, and it is made into a nonconductor. By another electrodeposition of polyimide, the polyimide is selectively electrodeposited on pinhole parts generated at the first film formation, and the pinholes are buried to form a film of  $\leq 10 \mu\text{m}$  thickness improved in insulating properties. For obtaining the polyimide film of the prescribed film thickness dividedly for plural times, the conditions of the treatment for making it into an insulator are controlled, and the electrical conductivity of the polyimide film is controlled. The polyimide metallic substrate can suitably be used for the production of electronic parts for packaging semiconductors.

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